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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/534,327

05/09/2005

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EXAMINER

SAINT CYR, LEONARD

ART UNIT

PAPER NUMBER

2626

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/534,327	<b>Applicant(s)</b> KLINKE ET AL.	
	<b>Examiner</b> LEONARD SAINT CYR	<b>Art Unit</b> 2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 October 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 7-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 7-11 is/are rejected.
- 7) ☒ Claim(s) 12 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05/09/05 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                      |                                                                   |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____                                                          | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments filed 10/08/09 have been fully considered but they are not persuasive.

Applicants argue that neither Malah nor Gao et al., teach or suggest memory device stores a reference table that includes at least one parameter value for the bandwidth expansion for at least two net bit rates of the narrowband speech signal (Amendment, pages 4, and 5).

The examiner disagrees, since Gao et al., disclose “**During the LPC analysis, bandwidth expansion** of 60 Hz and a white noise correction factor of 1.0001 may be applied to the autocorrelation coefficients. The bandwidth expansion provides additional robustness against signal and round-off errors during subsequent encoding. According to rate selection, the bit-stream may be decoded to generate the post-processed synthesized speech. The decoders 90, and 92 perform inverse mapping of the components of the **bit-stream to algorithm parameters**. The inverse mapping may be followed by a type classification dependent synthesis within **the full and half-rate** codecs 22, and 24 (col.31, lines 64 – 67; col.56, lines 20 – 26; performing **inverse mapping** to algorithm **parameters** implies a reference table stored in a memory that includes at least one parameter value for the bandwidth expansion for at least two net bit rates of the narrowband speech signal, **since the inverse mapping of parameters**

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**is done based on a selected rate at the decoders, and the bandwidth expansion is done at the decoding section).**

***Claim Rejections - 35 USC § 103***

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 7 – 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Malah (US PAP 2003/0093278) in view of Gao et al., (US Patent 6,574,593).

As per claim 7, Malah teaches a communication device, comprising:

a bandwidth expansion device for expanding a bandwidth of a narrowband speech signal (“extending the bandwidth of a narrowband signal”) at its low-frequency and/or high-frequency end (“high band region...lower band”) by synthesis of at least one frequency band contained within said narrowband speech signal (“synthesizing a highband signal from the narrowband speech” paragraphs 10, 30, and 8, first four lines).

However, Malah does not specifically teach a memory unit, communicatively coupled to said bandwidth expansion device, wherein said memory device stores a reference table that includes at least one parameter value used for the bandwidth expansion for at least two net bit rates of the narrowband speech signal.

Gao et al., teach that bandwidth expansion provides additional robustness against signal and round-off errors during subsequent encoding. According to rate selection, the bit-stream may be decoded to generate the post-processed synthesized speech. The decoders 90, and 92 perform inverse mapping of the components of the

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**bit-stream to algorithm parameters.** The inverse mapping may be followed by a type classification dependent synthesis within **the full and half-rate** codecs 22, and 24 (col.31, lines 64 – 67; col.56, lines 20 – 26; performing **inverse mapping** to algorithm **parameters** implies a reference table stored in a memory that includes at least one parameter value for the bandwidth expansion for at least two net bit rates of the narrowband speech signal, **since the inverse mapping of parameters is done based on a selected rate**).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use inverse mapping of the components of the bit-stream as taught by Gao et al., in view of Malah, because that would provide high quality decompressed speech (col.4, lines 23 - 25).

As per claim 8, Malah in view of Gao et al., further disclose that the reference table includes data relating to an amount of energy in a synthesized frequency band (“adaptive gain control module brings the energy level of the synthesized speech”) and of a spectral structure of the synthesized frequency band (“parameters...may be adapted according to the rate selection and the long-term spectral characteristic determined by the characterization module”; Gao et al., col.58, lines 13 – 17, and 43 – 45).

As per claim 9, Malah teaches a method for expanding a bandwidth of a narrowband speech signal for a communication terminal, comprising:

detecting a net bit rate of the narrowband speech signal of the communication terminal (“the decoded output from a **low bit-rate** speech coder”; paragraph 179);

expanding the bandwidth by means of a bandwidth expansion device on the basis of the parameters determined for a current bit rate (“obtaining parameters that represent the wideband spectral envelope from the narrowband spectral representation...parametric bandwidth extension systems”; paragraph 73, lines 1 – 6; paragraphs 67, and 117).

However, Malah does not specifically teach accessing a memory that includes a reference table which includes associations between at least two net bit rates and parameter values used for bandwidth expansion, in order to determine the at least one parameter value which is suitable for the detected net bit rate.

Gao et al., teach that bandwidth expansion provides additional robustness against signal and round-off errors during subsequent encoding. According to rate selection, the bit-stream may be decoded to generate the post-processed synthesized speech. The decoders 90, and 92 perform inverse mapping of the components of the **bit-stream to algorithm parameters**. The inverse mapping may be followed by a type classification dependent synthesis within **the full and half-rate** codecs 22, and 24 (col.31, lines 64 – 67; col.56, lines 20 – 26; performing **inverse mapping** to algorithm **parameters** implies a reference table stored in a memory that includes at least one parameter value for the bandwidth expansion for at least two net bit rates of the narrowband speech signal, **since the inverse mapping of parameters is done based on a selected rate**).

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Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use inverse mapping of the components of the bit-stream as taught by Gao et al., in view of Malah, because that would provide high quality decompressed speech (col.4, lines 23 - 25).

As per claim 10, Malah in view of Gao et al., further disclose that the reference table takes account, as parameters, of an amount of energy in a synthesized frequency band (“adaptive gain control module brings the energy level of the synthesized speech”) and of a spectral structure of the synthesized frequency band (“parameters...may be adapted according to the rate selection and the long-term spectral characteristic determined by the characterization module”; Gao et al., col.58, lines 13 – 17, and 43 – 45).

4. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Malah (US PAP 2003/0093278) in view of Gao et al., (US Patent 6,574,593), and further in view Van Der Vleuten (US Parent 6,498,811).

As per claim 11, Malah in view of Gao et al., do not specifically disclose the energy of the synthesized frequency band decreases as the net bit rate decreases.

Van Der Vleuten teaches that the bit rate of the lossless encoded residue signal will decrease, accordingly, as the energy content of the second residue signal decreases (col.4, lines 33 – 36).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made for the bit rate to be proportional to the energy as taught by Van Der Vleuten in Malah in view of Gao et al., because that would reduce the bit rate of a digital information signal more efficiently (col.1, lines 45 – 47).

### ***Allowable Subject Matter***

5. Claim 12 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The following is a statement of reasons for the indication of allowable subject matter:

As to claim 12, neither Van Der Vleuten, nor Malah, nor Gao et al., teach that the spectral structure of the synthesized frequency band takes account of the probability of occurrence of artifacts at specific frequencies in the narrowband speech signal.

### ***Conclusion***

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any



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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LEONARD SAINT CYR whose telephone number is (571) 272-4247. The examiner can normally be reached on Mon- Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on (571) 272-7602. The fax phone number for the organization where this application or proceeding is assigned is (571)-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/Richemond Dorvil/

Supervisory Patent Examiner, Art Unit 2626